Applied Magnetic Resonance 2014 vol.45 N11, pages 1147-1156

Study of the structures of the tetragonal paramagnetic centers in the mixed fluorite crystals with rare-earth ions by EPR

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Abstract

© Springer-Verlag Wien 2014. Electron paramagnetic resonance (EPR) of the mixed fluorite crystals with the general formula (MeF2)1-x-y(REF3)x(RF3)y (Me = Ca, Sr, Ba; R = Y, La, Lu; RE—paramagnetic trivalent rare-earth ions) were studied comprehensively by different authors and several structural models of paramagnetic centers were considered. However, a lot of details of EPR spectra still remain unexplained. In this work some modifications of the simplest models are proposed which allow explaining adequately the variety of the tetragonal centers in crystals grown under the different conditions. The calculated from the proposed models components of g-factors for Ce3+, Nd3+, Sm3+, Er3+ ions are in a good agreement with the experimental values.

http://dx.doi.org/10.1007/s00723-014-0564-0